

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

Claims 1-12. (Canceled)

13. (New) A complex semiconductor device comprising:

a semiconductor body having a first main surface and an opposing second main surface, said semiconductor body including a first semiconductor region of a first conductivity type provided as a surface region at the first main surface of said semiconductor body, a second semiconductor region of a second conductivity type, different from the first conductivity type, an exposed surface of which is on the second main surface of said semiconductor body, a third semiconductor region of the first conductivity type and a spaced-apart fourth semiconductor region of the first conductivity type which are extended from the second main surface into said second semiconductor region, a fifth semiconductor region of the second conductivity type provided as a surface region in said third semiconductor region, and a sixth semiconductor region of the second conductivity type provided as a surface region in said fourth semiconductor region;

an insulated gate provided on said second main surface so as to extend over said fifth semiconductor region and said sixth semiconductor region;

a first electrode in low-resistance contact with said first semiconductor region on said first main surface; and

a second electrode on said second main surface short-circuiting said third semiconductor region and said fifth semiconductor region,

wherein said fourth semiconductor region and said second electrode are connected together by a nonlinear element, said nonlinear element switches from a high impedance substantially OFF state to a low impedance substantially ON state when an applied voltage between said first electrode and said second electrode is higher than the voltage applied when said complex semiconductor device is conducting its rated current during a normal ON state thereof.

14. (New) A complex semiconductor device according to claim 13, wherein said nonlinear element consists of a Zener diode with its anode being connected to said second electrode, and

wherein the first conductivity type is p type and the second conductivity type is n type.

15. (New) A complex semiconductor device according to claim 13, wherein said nonlinear element consists of a field effect transistor with its gate electrode connected to said second electrode.

16. (New) A complex semiconductor device according to claim 13, wherein said nonlinear element includes one or more Zener diodes formed on said second main surface.

17. (New) A complex semiconductor device according to claim 13, wherein said first conductivity type is one of a p-type and n-type conductivities, and said second conductivity type is the other one of said p-type and n-type conductivities.

18. (New) A complex semiconductor device according to claim 13, wherein said first electrode and said second electrode represent a collector electrode and an emitter electrode of the device, respectively.

19. (New) A complex semiconductor device comprising:
a semiconductor body having a first main surface and an opposing second main surface, said semiconductor body including a first semiconductor region of a first conductivity type provided as a surface region at the first main surface of said semiconductor body, a second semiconductor region of a second conductivity type, different from said first conductivity type, an exposed surface of which is on the second main surface of said semiconductor body, a third semiconductor region of the first conductivity type extended from the second main surface into said second semiconductor region, a fourth semiconductor region and a fifth semiconductor region which are of the second conductivity type and are provided as surface regions in said third semiconductor region;
a first insulated gate provided on said second main surface so as to extend over said fourth semiconductor region and said fifth semiconductor region;

a second insulated gate provided on said second main surface so as to extend over said fifth semiconductor region and said second semiconductor region;

a first electrode in low-resistance contact with said first semiconductor region on said first main surface; and

a second electrode on said second main surface short-circuiting said third semiconductor region and said fourth semiconductor region,

wherein an exposed surface part of said third semiconductor region located further away from the fourth semiconductor than is the fifth semiconductor region and said second electrode are connected together by a nonlinear element, said nonlinear element switches from a high impedance substantially OFF state to a low impedance substantially ON state when an applied voltage between said first electrode and said second electrode is higher than the voltage applied when said complex semiconductor device is conducting its rated current during a normal ON state thereof.

20. (New) A complex semiconductor device according to claim 19, wherein said nonlinear element consists of a Zener diode with its anode being connected to said second electrode, and

wherein the first conductivity type is p type and the second conductivity type is n type.

21. (New) A complex semiconductor device according to claim 19, wherein said nonlinear element consists of a field effect transistor with its gate electrode connected to said second electrode.

22. (New) A complex semiconductor device according to claim 19, wherein said nonlinear element includes one or more Zener diodes formed on said second main surface.

23. (New) A complex semiconductor device according to claim 19, wherein said first conductivity type is one of a p-type and n-type conductivities, and said second conductivity type is the other one of said p-type and n-type conductivities.

24. (New) A complex semiconductor device according to claim 19, wherein said first electrode and said second electrode represent a collector electrode and an emitter electrode of the device, respectively.

25. (New) A complex semiconductor device comprising:
a semiconductor body having a first main surface and an opposing second main surface, said semiconductor body including a first semiconductor region of a first conductivity type, a second semiconductor region of a second conductivity type, different from said first conductivity type, an exposed surface of which is on the second main surface of said semiconductor body, a third semiconductor region of the first conductivity type extended from the second main surface into said second semiconductor region, a fourth semiconductor region of the second conductivity type provided as a surface region in said third semiconductor region, and a fifth semiconductor region of the first conductivity

type extended from the second main surface into said second semiconductor region;

an insulated gate provided on said second main surface so as to extend over said fourth semiconductor region and said second semiconductor region;

a first electrode in low-resistance contact with said first semiconductor region on said first main surface; and

a second electrode on said second main surface short-circuiting said third semiconductor region and said fourth semiconductor region,

wherein said fifth semiconductor region and said second electrode are connected together by a nonlinear element, said nonlinear element switches from a high impedance substantially OFF state to a low impedance substantially ON state when an applied voltage between said first electrode and said second electrode is higher than the voltage applied when said complex semiconductor device is conducting its rated current during a normal ON state thereof.

26. (New) A complex semiconductor device according to claim 25, wherein said nonlinear element consists of a Zener diode with its anode being connected to said second electrode, and

wherein the first conductivity type is p type and the second conductivity type is n type.

27. (New) A complex semiconductor device according to claim 25, wherein said nonlinear element consists of a field effect transistor with its gate electrode connected to said second electrode.

28. (New) A complex semiconductor device according to claim 25, wherein said nonlinear element includes one or more Zener diodes formed on said second main surface.

29. (New) A complex semiconductor device according to claim 25, wherein said first conductivity type is one of a p-type and n-type conductivities, and said second conductivity type is the other one of said p-type and n-type conductivities.

30. (New) A complex semiconductor device according to claim 25, wherein said first electrode and said second electrode represent a collector electrode and an emitter electrode of the device, respectively.

31. (New) A complex semiconductor device according to claim 25, wherein said semiconductor body further includes a sixth semiconductor region of the second conductivity type provided as a surface region in said fifth semiconductor region in which a portion of the exposed surface thereof has said insulated gate extended thereover,

wherein said nonlinear element is of a Zener diode or a MOSFET with the source thereof coupled to the gate thereof, and

wherein said first electrode and said second electrode represent a collector electrode and an emitter electrode of the device, respectively.

32. (New) An electrical power conversion apparatus containing one or more of said complex semiconductor device according to claim 13.

33. (New) An electrical power conversion apparatus containing one or more of said complex semiconductor device according to claim 19.

34. (New) An electrical power conversion apparatus containing one or more of said complex semiconductor device according to claim 25.